

**PATENT COOPERATION TREATY****PCT****INTERNATIONAL SEARCH REPORT**

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference PTS-0055WO	<b>FOR FURTHER ACTION</b>	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/US03/16214	International filing date (day/month/year) 16 June 2003 (16.06.2003)	(Earliest) Priority Date (day/month/year) 17 June 2002 (17.06.2002)
Applicant ISIS PHARMACEUTICALS, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the Report**
  - a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
    - the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).
  - b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:
    - contained in the international application in written form.
    - filed together with the international application in computer readable form.
    - furnished subsequently to this Authority in written form.
    - furnished subsequently to this Authority in computer readable form.
    - the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
    - the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.
2.  Certain claims were found unsearchable (See Box I).
3.  Unity of invention is lacking (See Box II).
4. With regard to the title,
  - the text is approved as submitted by the applicant.
  - the text has been established by this Authority to read as follows:
5. With regard to the abstract,
  - the text is approved as submitted by the applicant.
  - the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.
6. The figure of the drawings to be published with the abstract is Figure No. \_\_\_\_\_
  - as suggested by the applicant.
  - because the applicant failed to suggest a figure.
  - because this figure better characterizes the invention.

None of the figures

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US03/16214

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : C12Q 1/68; A01N 43/04; C07H 21/04; A61K 31/07  
 US CL : 435/6, 91.1, 325, 375; 514/44, 536/24.5, 23.1, 24.3, 24.33

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/6, 91.1, 325, 375; 514/44, 536/24.5, 23.1, 24.3, 24.33

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
 Please See Continuation Sheet

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/0107218 A1 (MERCOLA et al.) 08 August 2002 (08.08.2002), see claims 1-4, 11-14, and 21-24.	1-27 and 49
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Y	DINEV et al. Extracellular signal regulated kinase 5 (ERK5) is required for the differentiation of muscle cells. EMBO Reports, 2001, Vol. 2, No. 9, pages 829-834.	1-27 and 49
Y	US 6,030,822 A (LECHNER et al) 29 February 2000 (29.02.2000), (see Figures 4A and 4B).	1-27 and 49
Y	US 5,801,154 A (BARACCHINI et al) 01 September 1998 (01.09.1998), see column 7 lines 6 and 22 and column 8 line 12; column 6 lines 12-17 and (column 4 lines 26-30).	1-27 and 49
Y	FRITZ et al. Cationic Polystyrene Nanoparticles: Preparation and Characterization of a Model Drug Carrier System for Antisense Oligonucleotides. Journal of Colloid and Interface Science, 1997, Vol. 195, pages 272-288.	1-27 and 49

<input type="checkbox"/>	Further documents are listed in the continuation of Box C.	<input type="checkbox"/>	See patent family annex.
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* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 18 August 2003 (18.08.2003)	Date of mailing of the international search report <b>21 OCT 2003</b>
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703)305-3230	Authorized officer <i>Allie D. Roberts for Terra C. Gibbs</i> Telephone No. (703) 308-0196

Form PCT/ISA/210 (second sheet) (July 1998)

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**INTERNATIONAL SEARCH REPORT**

PCT/US03/16214

**Continuation of B. FIELDS SEARCHED Item 3:**

Medline, CaPlus, EmBase, CancerLit

search terms: antisense, ribozyme, ERK6, ERK-6, extracellular signal regulated kinase 6, stress activated protein kinase 3, SAPK3, mitogen activated protein kinase 3, mitogen activated protein kinase 12, MAPK12, PRKM12, p38 gamma, p38gamma, ERK3, and ERK5